

BEES BELONGING TO THE FAMILY BREMIDÆ¹
TAKEN IN WESTERN OREGON, WITH NOTESBY H. A. SCULLEN
Oregon Agricultural College
Corvallis, Oregon

The object of the following paper is to place on record the results of the writer's collecting for several years past, together with a study of material collected by others and now deposited in the collection of the Oregon State Agricultural College. An effort has also been made to include references to all published records of bumblebees taken in western Oregon, and to original descriptions of species known to occur there. About one thousand specimens of *Bremidæ* were available for study. These were collected in forty-eight different localities ranging from sea level to about 7000 feet.

Twenty-one species and seven varieties of *Bremus*¹ and four species and one variety of *Psithyrus* are recorded in the present paper. Two species of *Bremus* (*B. occidentalis* and *B. vosnenskii*) may be considered abundant. Four (*B. appositus*, *B. californicus*, *B. melanopygus*, *B. mixtus*) are common, and the remainder are relatively uncommon to very rare. All five species of *Psithyrus* are uncommon to rare.

Bremidæ, representing one or more species, are to be found in abundance in all parts of western Oregon from sea level to the snow line in the Cascades. Several individual species, however, appear to be limited in their distribution by certain conditions associated with altitude. *B. californicus* and *B. vosnenskii*, which are common at the lower altitudes, are seldom taken above 4000 feet elevation. *B. occidentalis*, on the other hand, is common at the low altitudes and also very abundant in the alpine meadows from 4000 feet to 6000 feet. *B. bifarius* var. *nearticus*, which is not uncommon above 4000 feet, is not recorded below that elevation, with the one exception given below. Too few specimens of many of the forms have been taken to determine their altitudinal range.

¹ Many leading hymenopterists (Rohwer, Lutz, Cockerell, et al.) continue to use *Bombidæ* and *Bombus*, while others (Frison, Viereck and some European workers) who have accepted the "Erlangen List" are now using *Bremidæ* and *Bremus*. Frison, 1919, p. 157, seems to justify the use of the latter names.

The writer is deeply indebted to Dr. Theodore H. Frison of the Illinois State Natural History Survey for his assistance in determining much of the material studied and for many constructive suggestions concerning this paper.

Many locality records of little importance for the more common species are omitted.

1. BREMUS NEVADENSIS (Cresson)

Cresson, 1874, p. 102, ♀, ♂, Nevada (Yarrow), Arizona (Henshaw). (Redescribed: Franklin, 1912, p. 416.)

Range: Alaska to New Mexico and east to Nebraska.

Only two specimens of this species have been taken in western Oregon.

Corvallis, ♀, VII-20, 1914 (F. I. Moe. Forest Grove, ♀, VII-29, 1916, L. P. R.).²

2. BREMUS SEPARATUS (Cresson)

Cresson, 1863a, p. 165, ♀, ♂, Pennsylvania, Rock Island, Illinois (Walsh), Canada (Saunders), redescribed: Franklin, 1912, p. 425, 428, Echo and Corvallis, Oregon.

Range: Alaska to Mexico and the Gulf of Mexico and from the Pacific to the Atlantic Coast.

This species is not uncommon in the Willamette Valley, but has not been taken elsewhere in western Oregon.

Albany, ♂, VIII-1, 1905 (Parsons). Corvallis, ♀, V-2, 1897, to IX-22, 1906 (Currin); ♂, VII-20, 1905 (Harlan), to IX-26, 1906 (Farrell); ♀, VI-12, 1924 (H. A. S.), to IX-11, 1921 (H. A. S.). Forest Grove, ♀, IX-17, 1915 (L. P. R.), ♂, and ♀, IX-17, to X-7, 1915 (L. P. R.). Hillsboro, ♀, ♂ and ♀, IX-30, 1915 (M. M. R.). Medford, ♂, VII-17, 1906 (Bennett). Monroe, ♀, VIII-6, 1904. Portland, ♀, VIII-5, to VIII-27, 1907. Salem, ♂, IX-24, 1921 (H. A. S.); ♀, IX-28, 1925 (H. A. S.).

3. BREMUS MORRISONI (Cresson)

Cresson, 1878, p. 183, ♀, ♂, Colorado (Morrison); Frison, 1926, p. 130. (Redescribed: Franklin, 1912, p. 431.)

Range: Western United States, east to South Dakota.

B. morrisoni is evidently very rare in western Oregon, since it has been taken only at two localities. It is probably confined to the lower altitudes.

Albany, ♀, VIII-2, 1905 (Parsons). Corvallis, ♀, VI-2, 1924, to VI-11, 1908 (Markel); ♀, V-1, 1914.

² To conserve space, initials only are used for collectors whose names occur frequently: A. H. A.=A. H. Amos; A. L. L.=A. L. Lovett; D. A. W.=D. A. Wilbur; G. R. McG.=G. R. McGinnis; H. A. S.=H. A. Scullen; W. J. C.=W. J. Chamberlin; M. M. R.=M. M. Rheer; L. P. R.=L. P. Rockwood.

4. BREMUS KIRBYELLUS (Curtis)

Curtis, 1835, p. lvii(*kirbiellus*). ♀, ♂, ♂. Arctic America. (Redescribed: Franklin, 1912, p. 290.)

Franklin, 1912, p. 294, Mount Hood, Oregon. (Doubtless refers to Viereck's record, 1904, p. 99.)

Range: Arctic America to the higher altitudes of Colorado and New Mexico. Viereck's record (1904, p. 99), from Mount Hood is the only record for Oregon. The species is evidently very rare in Oregon and doubtless confined to the very high altitudes. There is one unlabeled specimen in the collection at the Oregon State Agricultural College.

5. BREMUS OCCIDENTALIS (Green)

Green, 1858, p. 12, Northwest Coast of America, Fort Vancouver (Cooper) and Puget Sound (Suckley). (Redescribed: Franklin, 1912, p. 265.)

Cresson, 1879, p. 231, Oregon; Viereck *et al.*, 1904, p. 99, Corvallis and Mount Hood; Franklin, 1912, p. 272; Frison, 1927, p. 367, Olney, Mount Hood, Corvallis, Newport, Colestin, Alsea Grade (Benton County), Oregon.

Range: Alaska to New Mexico and east to South Dakota.

B. occidentalis is one of the most abundant species of bumblebees in western Oregon. In the lower valleys it seems to be more common in the wooded districts. In the mountain meadows in the Three Sisters region the writer found it to be the most abundant species August 6 to 16, 1926. It was working mostly on *Aster* at all high elevations up to 6000 feet.

Alsea, ♂, and ♀, VIII-18, 1917 (A. H. A.). Corvallis, ♀, III-21, 1926, (H. A. S.), to IX-4, 1921 (H. A. S.); ♂, VI-29, 1925 (D. A. W.), to VIII-10, 1922 (H. A. S.); ♀, VII-19, 1925 (D. A. W.), to VIII-22, 1922 (H. A. S.), Coos Bay, ♂, VI-20 and VII-19, 1926 (H. A. S.); ♀, VI-20, and VII-10, 1926 (H. A. S.). Eugene, ♂, VIII-16, 1905 (Foster). Fish Lake (Santiam Forest, elevation 3150 feet), ♂ and ♀, IX-5, 1925 (D. A. W.); Gold Beach, ♀, VII-11 and VII-12, 1925 (H. A. S.); Grants Pass, ♀, VII-4, 1906; Hillsboro, ♀, ♂, ♀, IX-30, 1915 (M. M. R.). Mary's Peak (Benton County, elevation 4000 feet), ♂, VIII-2, 1926 (H. A. S.). McKenzie Bridge (elevation 1329 feet), ♀ VIII-25 and VIII-27, 1924 (H. A. S.). Oswego, ♀, VII-10, 1907 (Georgia Ewing). Rainier, ♀, VII-17, 1907. Salem, ♂ and ♀, IX-24, 1921 (H. A. S.). Three Sisters region: Scott Lake (elevation 4650 feet), ♀, ♂ and ♀, VIII-7, 1926; and White Branch Creek (elevation 6000 feet), ♀, VIII-11, 1926 (H. A. S.). Toledo, ♀, VI-5, 1925 (H. A. S.). Wahtum Lake (elevation 3700 feet), ♀, VIII-24, 1923 (H. A. S.).

6. BREMUS OCCIDENTALIS var. PROXIMUS (Cresson)

Cresson, 1863, p. 98, ♀, Utah (Suckley). (Redescribed, Franklin, 1912, p. 270.)

Range: Western United States.

This variety is rare in Oregon. It has been taken only in the lower altitudes.

Coos Bay, ♂, VII-19, 1926 (H. A. S.). Corvallis, ♀, VIII-31, 1925 (H. A. S.), ♂, VII-23, 1925 (H. A. S.) Gold Beach, ♀, VII-10, 1925 (G. R. McG.). Salem, ♂, IX-24, 1921 (H. A. S.). Three Sisters region: Deer Butte (elevation 4650 feet), ♂, VIII-9, 1926 (H. A. S.).

7. BREMUS FRANKLINI Frison

Frison, 1921, p. 147, ♀, Nogales, Arizona (E. J. Oslar). *Morphotype* ♀ and *allotype* ♂, Frison, 1922, pp. 314-315, Oregon (C. F. Baker); Frison, 1926, p. 132.

Range: Western United States.

The only other records of *B. franklini* for Oregon, in addition to the types, are two workers taken by the author. The species seems to be rare throughout its range.

Gold Hill, ♀, VII-2, 1925 (H. A. S.). Roseburg, ♀, VI-29, 1925 (H. A. S.).

8. BREMUS HUNTII (Greene)

Greene, 1860, p. 172, ♀, "Utah Territory." (Redescribed: Franklin, 1912, p. 319.)

B. ternarius Viereck *et al.*, 1904, p. 99, Condon and Corvallis, Oregon, ♀, VII-14, 1900 and VIII-14, 1900 (Tulley). See Lutz and Cockerell, 1920, p. 519; Franklin, 1912, p. 322, Oregon.

Range: From Canada to New Mexico and east to Nebraska and the Dakotas.

B. huntii is a Rocky Mountain form rarely found in western Oregon. All specimens from western Oregon are from the Willamette Valley.

Corvallis, ♀, VI-8, 1900 (Bennett); ♂, IX-29, 1924 (H. A. S.). Salem, ♀, IX-24, 1921 (H. A. S.).

9. BREMUS EDWARDSII (Cresson)

Cresson, 1878, p. 184, ♀, ♀ (not ♂) California; Vancouver Island, B. C. (Edwards); Colorado (Morrison). "Possibly one of the last two is erroneous" (Lutz and Cockerell, 1920, p. 512). (Redescribed under name of *fernaldi*: Franklin, 1911, p. 157, and 1912, p. 323. See Frison, 1922, p. 317; 1926, p. 133.)

Range: Alaska to California and east to Colorado.

From the present records it would appear that this species may be limited in Oregon to the Willamette Valley and the coastal region.

Brookings, ♂, VII-9, 1925 (G. R. McG.). Corvallis, ♂, 1900. Gold Beach, ♀, VII-10, 1925 (G. R. McG.).

10. BREMUS EDWARDSII var. RUSSULUS Frison

Frison, 1927, p. 374, ♀, Yosemite Valley, California.

Range: Higher altitudes of California and Oregon.

Three Sisters region; Finger Board Prairie (elevation, 3825 feet); ♀, VIII-14, 1926 (H. A. S.).

11. BREMUS VOSNESENSKII (Radoszkowski)

Radoszkowski, 1862, p. 589, n. 13, ♀, ♂, T. 6, F. 1. California (Vosnesensky). (Redescribed: Franklin, 1912, p. 325.)

Frison, 1927, p. 368. Mount Hood, Olney, Waldport, Jacksonville, Ashland, Crater Lake, Oregon.

Range: From British Columbia to southern California and east to Nevada. Franklin says: "It belongs mainly to the Pacific Coast portion of the Transitional Zone, not crossing the Sierra Nevada Range to any great extent."

B. vosnesenskii is by far the most common species of bumblebee in the lower altitudes of western Oregon. It has been taken as high as 4650 feet in the region of the Three Sisters by the author, but is very uncommon at such high altitudes.

Brookings, ♂, VII-9, 1925 (G. R. McG.); ♀, VII-8 and VII-9, 1925 (H. A. S.). Cascadia, ♀, VIII-11, 1924 (H. A. S.). Corvallis, ♀, II-28, 1926 (H. A. S.), to VII-26, 1907 (V. E.); ♂, VII-17, 1925 (D. A. W.), to IX-22, 1906 (Currin); ♀, VII-1, 1923 (H. A. S.), to IX-11, 1921 (H. A. S.). Fish Lake (Santiam Forest, elevation 3150 feet), ♀, 1905 (Cate). Gold Beach, ♀, VII-12, 1925 (H. A. S.); ♂, VII-10, 1925 (H. A. S.); ♀, VII-10, 1925 (G. R. McG.). Grants Pass, ♀, IV-25, 1917 (C. W. Creel), to VII-1, 1925 (H. A. S.). Manzanita, ♀ and ♂, VII-30, 1920 (L. P. R.). Mary's Peak (elevation, 4000 feet), ♀, V-30, 1924 (H. A. S.). McKenzie Bridge, (elevation, 1329 feet), ♀, VIII-25, 1924 (H. A. S.). Mount Jefferson, ♀, September (A. L. L.). Newport, ♀, VII-13, 1905 (Davis). Oregon Mountain (Josephine County), ♀, VII-5, 1925 (H. A. S.). Portland, ♀, VI-18, 1925 (H. A. S.). Rainier, ♂, VII-17, 1907, and VIII-25, 1907 (E. Newkirk); ♀, VIII-25, 1907 (E. N.). Roseburg, VI-27, 1925 (G. R. McG.); ♀, VI-28, 1925 (H. A. S.). Sexton Mountain Josephine County, elevation 2046 feet), ♀, VI-30, 1925 (H. A. S.). Three Sisters region (Cascade Mountains); Scott Lake (elevation, 4650 feet), ♂, VIII-7, 1926 (H. A. S.); ♀, VIII-9, 1926 (H. A. S.); Deer Butte, ♂, VIII-9, 1926 (H. A. S.); Fingerboard Prairie, ♂, VIII-14, 1926 (H. A. S.). Wahtum Lake (Mount Hood region, elevation 3700 feet), ♂, and ♀, VIII-24, 1923 (H. A. S.).

12. BREMUS BIFARIUS var. NEARTICUS (Handlirsch)

Handlirsch, 1888, p. 243, ♀, ♂, ♂, British Columbia. (Redescribed: Franklin, 1912, p. 333. *B. bifarius* is described by Franklin, 1912, p. 328, under the name *Bombus edwardsii*. See Frison, 1922, p. 317.)

Frison, 1926, p. 134; 1927, p. 369, Crater Lake, Mount Hood, Oregon.

Range: Probably from Alaska to California and east to the Rocky Mountains.

With the exception of the one Forest Grove record this species has not been taken below 3000 feet elevation. It is apparently confined mostly to the higher altitudes (4000 to 6000 feet) of the Cascade Mountains, where it is common on *Aster* in the alpine meadows.

Belknap Springs (elevation 1650 feet), ♀, VIII-10, 1925 (G. R. McG.). Fish Lake (Santiam Forest, elevation 3150 feet), ♂, VII-5, 1925 (D. A. W.). Forest Grove, ♀, IV-17, 1926 (H. A. S.). Three Sisters region; Frog Camp (elevation 4700 feet), ♀ and ♂, VIII-15, 1926 (H. A. S.); McKenzie Pass (elevation 4650 feet), ♀ and ♂, VIII-12, 1925 (G. R. McG.); Scott Lake (elevation 4650 feet), ♂, VIII-7 and VIII-12, 1926 (H. A. S.); ♀, VIII-7 to VIII-13, 1926 (H. A. S.).

13. BREMUS SYLVICOLA (Kirby)

Kirby, 1837, p. 272, latitude 65 degrees, America.

Range: Alaska and western Canada.

This is a species of the far north which is here recorded for the first time for Oregon. It is apparently confined mostly to the high altitudes. One ♂, however, was taken at Coos Bay on *Digitalis purpurea*. In the Three Sisters region it was taken on *Aster* and *Epilobium angustifolium*.

Coos Bay, ♂, VI-20, 1926 (H. A. S.). Three Sisters region; Skieline Trail (elevation 5400 feet), ♂, VIII-11, 1926 (H. A. S.); west side timber line (elevation 6500 feet), ♂, VIII-11, 1926 (H. A. S.) White Branch Creek, ♂, VIII-11, 1926 (H. A. S.).

14. BREMUS MELANOPYGUS (Nylander)

Nylander, 1848, p. 236 (*melanophyge*). ♂. Sitka. (Redescribed: Franklin, 1912, p. 334.)

Viereck *et al.*, 1904, p. 99, Corvallis (Cordley) and Mount Hood, Oregon. Frison, 1927, p. 370, Olney, Newport, Mount Hood, Alsea Grade (Benton County), Marshfield, Waldport, Oregon.

Range: Alaska south to Oregon and Colorado; east to central Canada and the Rocky Mountains.

This species is not uncommon in many parts of western Oregon. It has been taken from near sea-level up to 2046 feet

(Sexton Mountain). It does not appear to be in the higher altitudes as one might expect from Franklin's report (1912, p. 337).

Clatskanie, ♂, V-16, 1925 (H. A. S.). Coos Bay, ♂, VI-20, 1926 (H. A. S.). Corvallis, ♀, III-15, 1926, to IV-24, 1922 (both H. A. S.); ♀, V-9, 1926, to VI-16, 1925 (both H. A. S.). Forest Grove, ♀, III-30, 1918 (M. M. R.). Gold Beach, ♀ and ♀, VII-10, 1925 (G. R. McG.). Grants Pass, ♀, VII-4, 1925 (G. R. McG.); McKenzie Pass (elevation 4650 feet), ♂, VIII-12, 1925 (G. R. McG.). Monroe, ♀, 1925. Mount Jefferson, ♀, VIII-17 (A. L. L.). Newport, ♂, V-16, 1915. Sexton Mountain (Josephine County, elevation 2046 feet), ♂, VI-30, 1925 (H. A. S.). Waldport, ♀, II, 1926 (J. E. Davis); ♀, IV-25, 1926 (B. G. T.). Wilson, ♂, VIII-5, 1916 (M. M. R.).

15. BREMUS SITKENSIS (Nylander)

Nylander, 1848, p. 235. ♀, ♂, ♀. Sitka, Alaska. (Redescribed: Franklin, 1912, p. 377.)

B. oregonensis (Cresson), 1878, p. 185, ♂, Oregon (Edwards); *B. oregonensis* (Viereck *et al.*), 1904, p. 99, Corvallis, Oregon (Cordley); Franklin, 1912, p. 381, Mount Hood, Oregon; Frison, 1927, p. 372, Waldport, Olney.

Range: Alaska to California and east to the Rocky Mountains.

B. sitkensis is quite generally distributed over western Oregon, although uncommon. It ranges from sea-level to over 5000 feet elevation in the Three Sisters region. It is not uncommon in the coast mountains.

Albany, ♂, VIII-10, 1917 (A. H. A.). Alsea, ♀, V-29, 1926 (H. A. S.). Alsea Mountain, ♀, III-9, 1926 (H. A. S.). Brookings, ♂ and ♀, VII-8, 1925 (H. A. S.). Cascadia, ♀, VIII-15, 1924 (H. A. S.). Coos Bay, ♂, VI-20 and VII-17, 1926 (both H. A. S.); ♀, VI-18 and VI-17, 1926 (both H. A. S.). Corvallis, ♀, III-24, 1926 (H. A. S.); ♂, VIII-8, 1925; ♀, V-18, 1915, to IX, 1926 (H. A. S.). Kings Valley, ♂, VII, 1907. Mary's Peak, ♀, VII-8, 1914 (L. G. Gentry). Rockaway, ♀, VI-27, 1920 (L. P. R.). Three Sisters region; Skieline trail (elevation 5400 feet). ♀, VIII-11, 1926 (H. A. S.); Fingerboard Prairie, ♂, VIII-14, 1926 (H. A. S.). Toledo, ♀, VI-5, 1925 (H. A. S.). Triangle Lake (Lane County), ♀, V-24, 1925 (H. A. S.). Waldport, ♀, VI-5, and VI-7, 1925 (H. A. S.). Wilson (Tillamook County), ♂, and ♀, VIII-7, 1916 (M. M. R.). Woodruff Meadows (Jackson County, elevation 3200 feet), ♀, VII-4, 1922 (W. J. C.).

16. BREMUS CALIGINOSUS Frison

Frison, 1927, p. 376, ♂, Arcata, California (C. D. Duncan, September 16, 1920).

Frison, 1927, p. 379, Corvallis, Kings Valley, Alsea, Gold Beach, Oregon.

Range: Western parts of Oregon, Washington, and California.

Alsea, ♂, VII-29, 1922, and VIII-2, 1921 (both H. A. S.). Brookings, ♂, VII-9, 1925 (H. A. S.). Coos Bay, ♂, VI-20, 1926 (H. A. S.). Corvallis, ♂, IX-1, 1924 (H. A. S.). Gold Beach, ♂, VII-10, 1925 (H. A. S.). Kings Valley (Benton County), ♂, VII-18, 1905 (Vincent).

17. BREMUS MIXTUS (Cresson)

Cresson, 1878, p. 186, ♀, ♂, Colorado (Morrison). (Redescribed: Franklin, 1912, p. 381.)

Franklin, 1912, p. 384, Oregon; Frison, 1927, p. 371, Newport, Olney, Corvallis, Waldport, Alsea Grade (Benton County), Colesin, Oregon.

Range: Alaska and central Canada south to northern California and east to Montana and Colorado.

B. mixtus is one of the more common species of the lower elevations of western Oregon. It is especially common in the lower altitudes of the Coast Mountains. This species seems to nest earlier than most others, as the first worker bumblebees to appear are usually of this species.

Alsea Mountain, ♀, III-9, 1926 (H. A. S.); ♂, VIII-2, 1925 (H. A. S.); ♀, V-5, 1923, to VII-20, 1921 (both H. A. S.). Brookings, ♀, VII-8, 1925 (H. A. S.). Corvallis, ♀, III-19, 1926 (H. A. S.), to V-15, 1898; ♂, V-28, 1915 (E. Dunn), to VIII-3, 1897; ♀, IV-14, 1926 (H. A. S.), to IX-9, 1906 (Schrack). Elam, ♀, IV-18, 1926 (H. A. S.). Eugene, ♂, VIII-21, 1921 (H. A. S.). Fish Lake, (Santiam Forest, elevation 3150 feet), ♀, IX-5, 1925 (D. A. W.). Forest Grove, ♀, III-31, 1914 (L. P. R.), to V-13, 1917 (Lane); ♂, VII-20 to IX, 1918 (both Lane); ♀, V-20, 1918 (Cole). McKenzie Pass (elevation 4650 feet), ♂, VIII-12, 1925 (G. R. McG.). Medford, ♀, VII-17, 1906. Oregon Mountain (Josephine County), ♂, VII-5, 1925 (H. A. S.). Portland, ♀, VI-18, 1925 (H. A. S.). Rainier, ♂, VII-17, 1907. Salem, ♀, IV-12, 1924 (D. A. W.). Three Sisters region; Scott Lake (elevation 4650 feet), ♂, VIII-9, 1926 (H. A. S.); Timber line, west side (elevation 6500 feet), ♂, VIII-11, 1926 (H. A. S.). Toledo, ♂, VI-5, 1925 (H. A. S.). Triangle Lake (Lane County), ♂ and ♀, V-24, 1925 (H. A. S.). Wahtum Lake Mount Hood region, elevation 3700 feet), ♂, VIII-24, 1923 (H. A. S.). Woodburn, ♀, VII-6, 1906 (Kinnison).

(To be Continued)